

Title: A review of heavy weight market pigs: status of knowledge and future needs assessment – **NPB #15-203**

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Date Submitted: May 31, 2016

¹ Funding, wholly or in part, was provided by *The National Pork Board*. The authors acknowledge A. D. Santos and D. A. Marçal for their assistance.

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These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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ABSTRACT: Marketing weight is an important economic variable that impacts the productivity and profitability of finishing pig production. Marketing weight has been increasing worldwide over the past decades driven by the dilution of fixed production cost over more weight per pig and the improvement of genetic selection of lean-type pigs. This review was aimed to summarize current knowledge and assess the future research needs on producing finishing pigs with marketing weight greater than 130 kg. Based on a thorough literature review, increasing marketing weight affected overall pig growth; in particular, cumulative ADG decreased by 4.0 g/d, ADFI increased by 78.1 g/d, and G:F decreased by 0.011 for every 10 kg increase of marketing weight. Increasing marketing weight by 10 kg increased carcass yield by 0.41 percentage units, backfat by 1.8 mm, LM area by 1.8 cm², carcass length by 2.2 cm, and belly yield by 0.32 percentage units, but decreased percentage of fat-free-lean by 0.78 units and loin, shoulder, and ham yields by 0.13, 0.16, and 0.17 percentage units, respectively. Studies that investigated the effects of marketing weight on pork quality observed decreased pH by 0.02 and 0.01 at 45 min and 24 h postmortem, respectively, and increased a* value by 0.28 per 10 kg marketing weight increase. Heavier market pigs had increased concentrations of saturated fatty acids and intramuscular fat. However, studies reported conflicting results for L* and b* values, drip loss, Warner-Bratzler shear force, and sensory properties of pigs in response to increasing marketing weight. A limited amount of research has been conducted to provide nutritional requirement guideline for pigs greater than 140 kg. Increased weight and size of heavy pigs can create challenges to farm and packer facilities and equipment. Discussions and recommendations are provided concerning the adjustments for floor and feeder space, barn design, ventilation, disease control, transportation, and carcass processing needed for increasing marketing weight. In conclusion, increasing marketing weight creates both opportunities and challenges to current finishing pig production,

and future research is needed to provide nutritional and management guidelines and improve feed efficiency and meat quality of heavy weight market pigs.

Key words: carcass quality, growth, heavy pig, marketing weight, meat quality